Mitigating Catastrophic Events Through Effective Medical Response

Statement of Dr. Richard N. Bradley
Associate Professor of Emergency Medicine
Medical Director – LBJ Emergency Center

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THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON
6431 FANNIN STREET, HOUSTON, TX 77030-1501
(713) 566-5397 FAX (713) 566-5024

Chairman Linder, Ranking Member Langevin, and other distinguished Subcommittee Members, thank you very much for the opportunity to address you today. My name is Dr. Richard Bradley. I am the Medical Director of the Emergency Center at Lyndon Baines Johnson General Hospital in Houston, Texas, and an Associate Professor of Emergency Medicine at The University of Texas Health Science Center at Houston. The UT Health Science Center at Houston is the most comprehensive academic health science center in the Southwestern United States. We are educators, students, physicians, researchers, dreamers, explorers, and inventors. We have six schools, several institutes, a psychiatric hospital and a multi-specialty group practice -- all focused on improving health and preventing disease through education, research and clinical service. We work for our patients, our community and for humanity. Our institution, its faculty, health professionals and staff were heavily involved in Katrina recovery and relief efforts both in Louisiana and in Houston. We provided health care for evacuees; advised elected and appointed officials in all jurisdictions about public health and recovery efforts; and assisted people in need in many other areas. I am proud to be a member of the faculty because our leadership and my colleagues responded quickly and with enormous compassion.

I also serve the University as the Associate Director for Emergency Medical Services Preparedness at our Center for Biosecurity and Public Health Preparedness. The center educates the frontline public health workforce, medical and emergency responders, key leaders, and other professionals to respond to threats such as bioterrorism, emerging infectious diseases, and other emergencies affecting our communities.

Through a contractual relationship between the university and the Federal Emergency Management Agency (FEMA), I serve as a Medical Team Manager with Texas Task Force One, a FEMA Urban Search and Rescue (US&R) team. I have deployed to several incidents with this team, most recently to Hurricane Katrina, where our team performed hundreds of rescues in New Orleans. Based on my first-hand experience as an emergency physician working with the US&R team, along with experience from participation in other disaster responses, I have formed several opinions regarding the importance of effective medical response in mitigating catastrophic events. However, the testimony I am providing today is my own – I am not testifying on behalf of the FEMA US&R program or Texas Task Force 1.

FEMA US&R Teams are Prepared to Respond to Nuclear Attacks

US&R involves the location, rescue, and initial medical stabilization of victims trapped in confined spaces. Structural collapse is the most common cause of victim entrapment. Additionally, transportation accidents, mines and collapsed trenches may entrap people. US&R is considered a "multi-hazard" discipline, as it may be needed for a variety of emergencies or disasters, including earthquakes, hurricanes, typhoons, storms and tornadoes, floods, dam failures, technological accidents, terrorist activities, and hazardous

materials releases. The events may be slow in developing, as in the case of hurricanes, or sudden, as in the case of a nuclear attack.[1]

There are currently twenty-eight US&R teams in the United States. Each team can deploy in either a 'heavy' or a 'light' configuration. In the heavy configuration, the team deploys with seventy people, all trained to at least the technician level in their area of specialty. These specialties include high angle rope rescue, confined space rescue, technical search, weapons of mass destruction (WMD) and hazardous materials operations, defensive water rescue, medical care and communications. Each task force is capable of operating round-the-clock, is completely self-sufficient for the first 72 hours, and can sustain operations for up to ten days.[2]

A terrorist attack involving nuclear weapons would likely create a situation with multiple casualties. Damage to structures may trap numbers of people. Responding personnel would need to monitor and control exposure to radiation and control contamination.

The US&R system could be part of the medical response to this scenario. In the past few years, all of the members of the system have completed training in WMD and hazardous material operations. In particular, the medical personnel on the team have training and certification in handling these types of casualties. The teams carry equipment to detect radiation and monitor personal exposure. They are also prepared for contamination avoidance and control.

US&R Teams are Not Appropriate for Response to Biological Attacks

A terrorist attack involving biological weapons would present an entirely different scenario. While it is reasonable to consider that there may be thousands of people needing medical care, and a complete overload of local medical resources, there would be no collapsed buildings and no one in need of rescue.

While a US&R Task Force does have seventy highly trained members, the general level of medical training is that of emergency medical technician. A heavy task force has only two physicians and four paramedics. While the National Disaster Medical System does credential these individuals as federal health care providers, the US&R system has neither designed nor equipped these teams for handling large numbers of casualties.

The treatment priorities for US&R medical personnel are first, injured or ill US&R team members, second, entrapped victims, third, the team's search dogs, and finally, other disaster victims. The six medical personnel are not equipped to operate completely independently of the remainder of the task force – they depend on other task force personnel for support in the logistical, planning and command areas.

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[1] FEMA. About US&R. [Online]. 2004 [cited 2005 Oct 13];[1 page]. Available from: URL:http://www.fema.gov/usr/about.shtm

[2] FEMA. Typed resource definitions: search and rescue resources. [Online]. 2005 [cited 2005 Oct 13];[41 pages]. Available from: URL:http://www.fema.gov/pdf/nims/508-8_search_and_rescue_resources.pdf

Thus, while total activation of the federal US&R system would provide approximately 6,000 highly trained personnel to FEMA, they would be of minimal benefit in the medical response to a terrorist attack using biological weapons. In addition to direct medical care, the impacted community would need services such as laboratory detection, quarantine, isolation, disease control, disease tracking and mass vaccination. Hospitals and health departments are the best providers of these services. If a community needs federal medical assistance after a biological attack, Disaster Medical Assistance Teams (DMAT's), and assets from organizations such as the Veteran's Administration, The United States Public Health Service, the National Guard and other Department of Defense medical assets are much more appropriate.

Command and Control of the Local Medical Response

Effective medical response to a disaster begins locally and the official ultimately responsible is the emergency manager. This individual is usually the mayor or city or county manager, who, as the local chief executive officer, is responsible for public safety and welfare. He or she directs the response to the disaster by assessing the needs and assigning resources to meet those needs. The emergency manager must commit all appropriate local resources and mutual aid before requesting state, federal or military assistance.[3,4]

Many of the resources that the emergency manager needs to deal with the disaster are those that he or she has direct command over, such as fire, police, EMS, public works, waste management, etc. There are other resources that he or she needs but does not have direct authority over, such as hospitals and doctors. These are critical resources because ultimately, the emergency manager is responsible to ensure that all victims get the medical care they need. This is a significant challenge for the emergency manager: he or she is responsible for ensuring hospital care is available but has no authority over the hospitals to compel them to respond.

To complicate this further, even though federal law does require hospitals and emergency departments to treat anyone with a medical emergency, it does not require them to do anything to augment their capacity to respond when a disaster strikes. As a result, many hospitals faced with a nearby disaster will manage the overflow as the do on any other busy day. This means that when the in-patient beds and intensive care units are full, patients will backup in the emergency department.

As local hospitals become overloaded, emergency managers will need hospitals outside the immediate disaster zone to accept patients in transfer. These hospitals are only required to accept transfer patients if they have the capacity to care for them. The issue

[3] U.S. Dept. of Homeland Security. National response plan. [Online]. 2004 [cited 2005 Oct 18];[114 pages]. Available from: URL:http://www.dhs.gov/interweb/assetlibrary/NRPbaseplan.pdf

[4] While the emergency manager is ultimately responsible for all disaster response, he or she generally delegates many emergency response functions. Most jurisdictions will have a health officer or other individual pre-designated to exercise emergency public health powers. In many cases, this should be the individual directly responsible to the emergency manager for medical and hospital issues.

here is that the receiving hospital defines its capacity without external validation. It is under no obligation to call-in extra staff to create surge capacity during a disaster.

It is clearly in the public interest to address this problem at a national level. One possible solution would be to encourage local governments to develop memoranda of agreement (MOA) with the hospitals in their area. The MOA should specify several things. First, working collaboratively, each hospital and the local government should develop a number of specific response options they could invoke in time of disaster. Some options would be general, such as agreeing to cancel all staff time off and have all available clinical personnel work twelve-hour days, seven days per week for up to ten days. Other options would be specific, such as tasking the hospital to turn its day surgery center into a ten-bed intensive care unit. The MOA would give the emergency manager the authority to request hospitals to initiate any or all of these emergency actions. It should also allow the emergency manager to send field observers to each hospital to determine the actual situation and workload during a disaster.

The MOA should also address reimbursement for hospitals and physicians. During and after a disaster, they should continue to bill patients for care they provide. This is appropriate, since, in many cases, third-party payers have financial responsibility for medical care. However, many individuals who require medical assistance after the disaster will not be able to pay for it. Furthermore, hospitals and physicians will experience unusual expenses. Most of these expenses will be overtime pay, but they may also include the cost of renting or purchasing extra equipment. Government agencies that request hospitals and physicians to respond to the disaster should compensate them for a potion of these unusual expenses. The MOA should specify the reimbursement rate for each response option that the emergency manager may request.

There are many advantages to this proposal. Each hospital and its entire staff will be able to plan for and train to the exact requests they may receive during a disaster. Emergency managers will gain an understanding of the extent of the emergency medical resources available in their community and will know when all of these resources have been committed. This is a critical step in understanding when it is time to ask for state or federal assistance. Finally, the MOA will create a process to track and validate requests for reimbursement. Government officials will be able to know the cost of the medical response in real time. I urge our national leaders to consider requiring the existence of such an MOA as a pre-requisite to full federal reimbursement for disaster medical expenses.

Defining Health and Medical Resources

As hospitals and communities respond to meet the needs of the disaster, they may need to request additional medical resources. Medical response will be more effective when there is consistent use of standard resource definitions. Whether the need is for a cardiac monitor or a disease control team, everyone who deals with resource requests must share the same definition of the resource. The solution is to include hospitals and other medical personnel and teams into the national resource typing system. Resource typing is designed to enhance emergency readiness and response at all levels of government through a comprehensive and integrated system that allows jurisdictions to augment their response resources during an incident. Specifically, it allows emergency management personnel to identify, locate, request, order, and track outside resources quickly and effectively and facilitate the response of these resources to the requesting jurisdiction.[5] The National Incident Management System (NIMS) has already developed specific definitions of 120 different types of resources, covering assets as diverse as 'small animal sheltering team' and 'crawler cranes.' The typed resource definitions already include some health and medical resources, but these are currently limited to the response teams that have performed so well during past disasters, such as DMAT's and Disaster Mortuary Assistance Teams.[6]

I would like to commend the leadership at FEMA for their foresight in establishing these resource definitions. They are continuing to refine and expand them and are inviting input from the emergency response community as they proceed. I strongly encourage my health and medical colleagues from around the country to provide expert suggestions and comments to FEMA during this process.

Requesting State and Federal Medical Assistance

As the Emergency Manager determines that local and mutual aid medical resources are fully committed, he or she will begin to request resources from the next higher political authority, usually the state. The state, in turn, fills resource requests as best it can, and then requests assistance from the federal government.

Officials at the state and federal level may face the temptation to question some resource requests coming from the local emergency manager. It is clearly possible that some requests may not be practical, and others might be unreasonable. However, state and federal officials should not spend an unreasonable amount of time to approve reasonable requests simply because independent verification of the need is not available.

I have personally seen what a good job our federal disaster officials can do with these requests. After Tropical Storm Allison hit Houston in 2001, I was assigned to the Emergency Medical Services desk in the City of Houston's Emergency Operations

[5] The NIMS Integration Center. Resource typing. [Online]. 2005 [cited 2005 Oct 16];[2 pages]. Available from: URL:http://www.fema.gov/pdf/nims/resource_typing_qadoc.pdf

[6] FEMA. Typed resource definitions: health and medical resources. [Online]. 2005 [cited 2005 Oct 17];[13 pages]. Available from: URL:http://www.fema.gov/doc/nims/508-5_health_medical_resources.doc

Center. We were beginning to understand the significant impact that losing six major hospitals would have on our city. Due to the nature of the storm, the rest of the country did not yet have any idea of its severity. Our initial request for medical support was for four DMAT teams and twenty ambulances. Soon after I submitted this request through channels, I was on a conference call with the senior leadership of the National Disaster Medical System (NDMS). I recall one of the federal participants on the call questioning the severity of the situation in Houston, and suggesting that it would be a good idea to wait and send a federal representative to Houston to validate the need before sending assistance. The NDMS leader on the call responded, "No. If Houston says they need it, that is good enough for me. We will send them what they are asking for." Any local official who deals with the medical consequences of a disaster expects and appreciates responses like this.

Under the National Response Plan, federal officials do not send resources to a disaster until requested by local officials.[3] However, this should not prevent federal disaster officials from sending advisors in to the disaster area immediately after the incident has occurred. These advisors could work with teams that perform rapid needs assessments. They could then assist the local and state officials with determining exactly what the needs are. The advisor could also counsel the emergency manager and his or her staff to help them determine what state or federal resources would best meet their needs.

Conclusion

We can mitigate disasters through effective medical response. In relation to a nuclear attack, US&R teams are clearly a vital part of the nation's response capability. In contrast with this, the US&R system would probably not be a key part of our medical response to a biological attack.

Looking beyond the US&R system, effective medical response will require efforts to develop new resource definitions in the hospital and medical area. Using these definitions, each hospital should work with local government to determine a list of actions that it could take to expand its ability to care for patients during a disaster. They should formalize this with a written agreement that has provisions for assigning activation authority to the emergency manager while guaranteeing reimbursement for some of the unusual expenses that they would incur.

As emergency managers are deciding what to request from their hospitals, they must also decide what to request from state and federal government. Since, in many cases they may not have a complete picture of their current medical needs, and they may be unfamiliar with all of the federal medical resources available, federal advisors should be available early after a disaster occurs to guide them in making the correct decisions.

Thank you very much for this opportunity to speak with you regarding such an important topic.